Herpesvirus infections in transplant recipients

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SAHLGRENSKA AKADEMIN
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Herpesvirus infections in transplant recipients

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Abstract

Herpesvirus infections are common and can cause serious and life-threatening conditions in transplanted individuals. In this thesis, consisting of 4 papers (I-IV), we investigated primary infection and reactivation of Cytomegalovirus (CMV), Human Herpesvirus type 6 (HHV-6), Varicella Zoster Virus (VZV) and Epstein-Barr Virus (EBV) in transplant patients. The overall aim was to expand our knowledge on the incidence, prophylaxis, management and long-term effects of herpesvirus infections after transplantation. The studies were all retrospective. Results from serum and whole blood analyses by quantitative polymerase chain reaction (PCR) for CMV and HHV-6 in a cohort of 97 adult allo-SCT patients (papers I and II) and CMV and EBV in 58 renal transplanted children (paper IV) were compiled. VZV antibodies were analyzed using ELISA assays and immunofluorescence from blood samples of 85 renal transplanted children (paper III).

In paper I, patients with CMV DNAemia had improved survival compared to CMV negative patients. There was an increased risk of CMV DNAemia with a seronegative donor to a seropositive recipient. CMV disease with debut more than 110 days after transplantation was related to steroid treatment for Graft versus Host Disease (GVHD). The morbidity associated with HHV-6 DNAemia following allo-SCT was in most cases mild. The overall one-year survival among the patients with HHV-6 DNAemia was not significantly different from the HHV-6 negative patients (paper II). At renal transplantation, protective VZV antibody-levels were less frequent and of lower magnitude in varicella-vaccinated children than in those with previous varicella. Vaccinated patients then lost their seropositivity to a greater extent than previously infected individuals. Herpes zoster was only seen in previously infected children (paper III). Long-lasting chronic high EBV load carriage (CHL) was seen in 24% of the renal transplant patients despite reduced immunosuppression. CHL carriage mainly developed in younger children. None developed post-transplant lymphoproliferative disorder (PTLD) during the median follow up of almost 8 years (paper IV). To conclude, the incidence of herpesvirus DNAemia is high after transplantation. VZV-vaccination and antiviral prophylaxis against CMV and VZV as well as pre-emptive CMV treatment and surveillance of EBV DNA are lifesaving and reduces the long-term effects of herpesvirus infections.

Keywords: Allogeneic stem cell transplantation, Cytomegalovirus, Epstein-Barr virus, Human Herpesvirus type 6, Renal transplantation, Varicella zoster virus.